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ABSTRACT

This paper describes one educator's experience with creating multimedia presentation materials for a college computer literacy class. The paper discusses: selecting software--the decision between authoring software and presentation software; selecting hardware--what type of computer systems to select, and issues when classrooms are equipped with different computer systems; deciding in what type of course to test the new multimedia system; developing multimedia instruction that is effective without being distracting; maintenance and difficulties in implementation; student reaction; and other uses for multimedia within the school such as a multimedia library map, presentations for guests, and library tutorials. The significant time spent learning how to develop and implement multimedia instruction has been rewarded with useful and effective teaching materials, tutorials used on campus, and workshops which help defray conference costs and enable instructors to stay current with other colleges and universities' use of multimedia and the Internet. (SWC)

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Multimedia in the Classroom: Recollections After Two Years

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Introduction

I attended a 1994 workshop in Creating Multimedia Presentations Utilizing COMPEL at the ASCUE pre-conference workshop and was instantly enamored with the idea of "spicing up" my computer literacy lectures with hi-tech wizardry ("If you can't wow them with wisdom,.....) After a mere six hours of exposure and limited practice, I felt that I could probably begin to transform what might eventually become the same old lecture notes, however unlikely that may be in this field of study, into a more flexible and exciting set of multimedia presentation materials. I was committed to utilizing multimedia tools to revamp my delivery system and have spent the last two years (as time permitted) doing so.

This paper will demonstrate and discuss the many successes and the frustrating failures of the past two years and offer advice to those who have embarked on their own multimedia adventures or plan to do so in the future.

Software Selection: Authoring Package Power or Presentation Package Convenience?

The first experience I had with electronic presentation materials came through Harvard Graphics, at a time when it allowed for linear slide show creation. At that time, that was all I could handle so it served me well for one year. After attending the pre-conference workshop at the 1994 ASCUE conference, it was obvious to me that what I had done was merely the tip of an iceberg and that a significant investment of time and energy was going to be necessary before I would realize any great gains over mere "slide shows." Early in the workshop, the question of the best software package a beginner should choose was raised. I happened to go to Will's Bookstore at Barefoot Landing the day before the workshop and picked up a copy of a multimedia publication which evaluated 5 - 10 "Presentation Powerhouses" and I made copies to share with the participants. In the comparison, it was pointed out that authoring packages (of that time) often required the user to learn a scripting language and that "slide show" packages of that period were often lacking in their ability to easily implant motion video, sound, and animation without a certain facility in object linking and embedding. Having little experience in either area, I kept reading. The top rated package was produced at a small software house called Gold Disk and their product was called AstoundTM. It rated higher than all other packages (including Powerpoint, Harvard Graphics, Charisma and others) in power and ease of use. After calling them and working out an $89 deal, I made the plunge.

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I have not been disappointed. I do realize that in the 2 years since I made the purchase, the other software companies have incorporated many of the features in their packages which Astound originally introduced. The current version, Astound 2.0 and its Astound Studio application package which include Astound Actor, Animator, Draw, Sound, Image and Video still (IMHO) represent the best value at under $100. The only advantage I see in moving to Powerpoint is the number of installed MS Office Professional packages out there now. All competitive packages now include a "play only" executable file which can be legally distributed to anyone free of charge as well as the ability to create self contained executable presentations which can be "run" on any Windows based machine. I also chose Astound since it can save a MAC compatible presentation from within the Windows program (even though our campus is largely a Windows/DOS based environment.)

Hardware Selection: Powerhouse Pentiums or Lowest Common Denominator?

When we obtained grant money to equip our student computer labs and our teaching computer classrooms and our multimedia projection room, we knew we wanted Windows capable machines. Unfortunately, we did not have adequate funding to equip all of our faculty offices with Windows capable machines. As a result, most faculty received 386 systems with 1 MB RAM and 40MB hard disks (1992-93) As money trickled in for updating faculty computers, those who taught Windows software in CSCI courses were given the highest priority to receive 486 machines with 8MB RAM. To accommodate those who wished to have access to multimedia software for development purposes, the Computer Advisory Committee equipped a single "Hi-Tech" multimedia development room in the library with a MAC and a Pentium system, color scanner, color ink jet printer, laser B/W printer, sound capabilities, internet access, and appropriate multimedia development software including Astound. One classroom (the "MM projection room" was equipped with a three gun color projector mounted on the ceiling, a MAC and Pentium system with multimedia capabilities. Another tiered computer classroom had 25 486 systems with a 26th in the front of the class equipped with Tech Commander, a hardware based control system where each student workstation can be "controlled" by the instructor so that the student can see what is on the instructor's screen, or vica-versa, as well as each others' screens. In this way, the instructor can utilize the room to either coordinate "hands-on" lab experiences, or to present multimedia materials to the work stations via the Tech Commander. I will discuss a bit late in the paper some of the problems caused by the different levels of computing power available in the different classrooms as well as the differences between the development room and the class rooms.

Selecting Appropriate Course: Pilot Study or Full Speed Ahead?

As I was the only CSCI full time faculty member (bringing a whole new meaning to the term critical mass) and the only faculty with an interest in multimedia development, there was little competition over the use of the hi-tech room and little question which course would serve as a testing ground for mm application. The large majority of time was spent in the development of materials to be used in our computer literacy course CSCI 101, a decision I am happy with.

In fact, at one point I started to develop materials for other course work until I found I did not have the time to develop high quality materials for many classes simultaneously. The quality level in my presentations started to revert to simple linear slide shows and I did not have the time to gather outside sources of MM materials for inclusion since all of my time was spent "making slides." I

found that my whole first year was best spent concentrating on one class. I was teaching multiple sections of that class which allowed me to try changes "on the fly" often making significant content changes during and between classes. This was preferable to waiting until the end of the day to try to remember what changes to make.

Multimedia Development: Learning Enhancement or Simply "Doc Hollywood" in Academe?

I did fall into some common traps early in my MM development experiences. As many novice MM developers are prone to do, I tended at times to spend too much time on glitzy sound, motion, and animation to the point where it could be distracting to the learner. I did try to implement the suggestions of other MM developers as far as keeping fonts and colors to a minimum to enhance retention rather than distract the learner. Also important was the relative positioning of important material and the positioning of materials such as clip art so that the most important material took visual priority over auxiliary material.

One decision, for example, was to revert to simple slide transitions between slides since some of the more dramatic effects such as "roll down" or "snake in" proved too distracting or just too slow. Another lesson I learned early was to view the color choices on the same equipment and preferrably in the same room under the same conditions as you will display it in final form. At last year's ASCUE conference, I went out of my way to come in to the center room at Water Oaks to view my show the day before I presented it. The projector was somewhat dimmer than the one we use at USC Sumter, so the backgrounds which looked so rich and luxurious on our projection system looked "just plain dark" when viewed on the ASCUE provided equipment. I cleverly went back that evening and switched all the backgrounds to a lighter gradient combination which showed up much better on their screen. When I showed up the next morning to present, I found out that I was NOT in the center room, but I was in the room with the windows and a different projector. We had a good laugh when I started showing my "field-tested" slides only to find them readable but far less than optimal since they were so light. A similar occurrence happened when presenting at a conference at the technical school located approximately 2000 yards from my office. I knew that I needed to assure that the projector would be adequate before the fact since there was no time to "pre"-view it in the room in which it was to be held. I carried our own LCD panel and my personal notebook computer to insure I would be developing and presenting on identical hardware. I asked in advance to see if the lighting could be dimmed to accomodate enough contrast for the projection system to be viewed effectively without turning off all the lights. They assured me they could. When I arrived I found the flourescent lighting had two levels, but both levels were too bright for adequate viewing so we sat in the dark as I struggled to see the keyboard during the presentation. It went better for them since they simply had to view the presentation, but note taking in the dark is not optimal for the typical undergraduate who might take advantage of the dim lighting to catch up on some ZZZ's."

Maintenance: New Hardware and Software Updates Create Opportunities and Headaches

Some unexpected problems occurred when the Pentium systems were made available for MM development in our hi-tech room. We did foresee some of the potential problems regarding the availability of MM resources in ALL the locations they might be utilized: the hi-tech development room, the tiered computer classroom and the MM projection room. For example, it was clear that all the rooms should have a CD-ROM. We did not realize how big a problem would be caused by

having a more powerful system in the hi-tech development room than in the MM projection room. I developed smooth and professional motion video and animated materials in the hi-tech room with its Pentium 90, higher speed PCI 2 MB video card, higher speed SCSI hard disk on a PCI bus, and with a triple speed CD-ROM and 17" high resolution screen. I then would show it on the Pentium 60 with a smaller, slower IDE VESA local bus hard disk, a double speed CD-ROM, a 1MB VESA video card on a high quality three gun projection system. The results were good as far as color, speed of access, and smoothness of transition in animation and special effects... everything except for full motion video where the results were quite disappointing. The CD which came with the CSCI text book contained AVI files which the double speed CD could not transfer quickly enough to avoid choppiness. At many points, the choppiness was so severe that we lost the audio track containing the narration. It became so distracting that we eventually abandoned the initial effort.

In an effort to improve the performance when displaying AVI files, we uploaded them onto a network disk and accessed them from the network drive. When running the AVI file, the choppiness lessened BUT DID NOT disappear as expected. After some troubleshooting trial and error, we determined it was the network card which was now the bottleneck. We then surrendered and downloaded the AVI files to the hard disk as we needed them. This was a time consuming process which could only be done piece meal since the hard disk did not have enough space to save all the AVI files at once. We had to "rotate" the files until a new CD cold be installed by an already overloaded CSD staff. The new CD lasted three weeks before someone loaded two CD's without their caddy, and disabled the CD temporarily. All but the strong hearted would have thrown their hands up in despair long before this. It is important to have a "champion" on campus willing to put up with the early pitfalls and failures so neophytes do not get turned off to the process before they ever experience the benefits.

A second transition problem we experienced occurred when we developed a presentation on a Pentium system and displayed it on a 486-33 system through the Tech Commander in the tiered computer classroom. When many transitions were required simultaneously, such as the simultaneous entry of text from more than one text object, that familiar choppiness would return. This time it simply detracted from the "polish" of the presentation as opposed to the content. One simple transition which was especially slow was the roll down slide transition, especially if the slide contained complex images. Luckily, changing the slide transition to even a large segment of slides is a four or five click operation. When moving from a Pentium to a 486, animation was much slower but we had expected this and made adjustments in the time line to accommodate the difference in CPU speed. The unexpected problem was that sometimes the presentation was to be shown in the tiered computer classroom with a 486-33 and sometimes in the projection room with the Pentium 60. It depends on the day of the week as the class alternates between the two rooms.

Student Reaction: Some for the Very First Time!

The general reaction was very favorable with two notable exceptions. The first, mentioned above, was the disappointing AVI file performance which partially disrupted two class periods by causing delays and distractions. This was temporarily corrected by utilizing the local hard disk to insure adequate throughput to eliminate the choppy motion video playback, with the permanent solution being the replacement of the CD-ROM. The second "circumstance" which proved less than acceptable was the general lighting conditions in the MM projection room. The classroom was not

originally designed to have a projection system in it. The florescent lights were unacceptably bright, yet with the lights off, it was much too easy to "lose" the audience's attention span. We installed recessed lighting with a dimmer which lessened the problem, but the light level still must be quite low to effectively display vivid colors. One interesting lesson we have learned is that the tiered classroom, originally built for hands-on lab experience, is better in may ways for presenting slide material, the only exception being full motion video. They tend to stay more alert and take better notes since they have more light.

On the positive side, the students all liked the fact that notes were easier to take when organized in slide format. They also liked the fact that executable files were made available on the campus network to be viewed after the fact from lab computers. On bad side effect is that some of the less motivated students felt they did not need to attend class as often if the notes were "put on the network" for viewing after the fact. This myth was quickly squashed as they received the results of the first exam. I suggest the same result would likely have occurred to these students had the notes not been made available on the network. The AVI files which showed computer related "movie clips" which came on CD-ROM with the text book were very well received. They were more convenient that renting or buying videos on current events, and could be retrieved relatively instantaneously if one suddenly became appropriate to show due to in class discussions. We had such an occasion when discussing global positioning systems and how they were being utilized by moving companies to keep tabs on the location of their moving vans. During the discussion, we simply said... let's pull up the AVI file and view it now to answer these questions. Without an experiment to test if retention was enhanced, the most I can say is that it seemed that the timeliness of the feedback was appreciated and that the medium used was much more effective than the alternative... "Turn to page ### to see a picture of a GPS and to read about how it is utilized."

I did learn by mistake that implanting a motion video file into an Astound presentation pushed the Pentium 60 just beyond its limits with respect to timely retrieval. I found that running Media Player separately (even in its own window concurrent with Astound) and playing the file directly from it saved time in the long run and let me choose exactly when to show it. It was somewhat slow when run inside an otherwise complicated Astound slide show in Windows 3.11.

Perhaps the most positive aspect of utilizing Astound was the use of scanned images from the text in the shows themselves, with my own annotations transitioning onto the screen at appropriate times. The text we utilize comes with Powerpoint presentations that have all the images of the book included. I found that while I could import the shows and make changes to customize them in Astound, it was far less time consuming to use them as a "guide" to creating my own show in Astound. The initial investment or scanning in the images and the necessary hard disk space were the only extra costs. Since the slide shows that came with the text were "OK" but did not always use the emphasis nor the words I would have chosen, I found these costs reasonable. I would have preferred if the text book publishers had the images stored separately as graphic files, but since the Powerpoint shows arrived as executable files, I have not been able to "clip" the images from the shows themselves. Utilizing a screen capture program would have been at least as time consuming as scanning in the images directly. It also allowed me to freely use (fair use) other sources as well, including advertisements in current magazines, articles and reviews of certain products.

Multimedia Outside the Classroom

I have utilized Astound to produce a multimedia map of our library, various presentations for external visiting dignitaries, a tutorial on "Doing a Research Paper" for use in the library (under construction), and of course for presentations at professional meetings. I have also conducted workshops at professional meetings in Astound. The fact is, I spend between 10-15 hours per week either developing or utilizing multimedia materials I have produced. I would classify an activity that takes up approximately twenty to twenty-five percent of your work week as a significant investment of your time. Granted, there are weeks where I spend as little as one to two hours, but they are balanced by weeks where I spend twenty-five to thirty hours (especially if I am working on a project the scope of the research paper multimedia tutorial.)

Summary

I would characterize my experiences with multimedia in the classroom as successful and rewarding for both my students and myself. The significant time (over the course of year one) spent gearing up to become productive has been paid back in the form of useful and effective teaching materials, tutorials which are being used on campus now, workshops which are helping defrat conference costs at a time where we have no travel budget, thereby keeping me current with respect to what others are doing with multimedia and the internet in their colleges and universities.